IN THE UNITED STATES PATENTS AND TRADEMARKS OFFICE

Applicants:	Stefan DUTZMANN et al.
Serial No.:	09/843,396
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For:	FUNGICIDE ACTIVE SUBSTANCE COMBINATIONS

Art Unit:	1616
Examiner:	Frank I. CHOI

Hon. Commissioner of Patents and Trademarks

Washington, D.C. 20231

DECLARATION

I, Ulrike Wachendorff-Neumann, of Oberer Markenweg 85, 56566 Neuwied, Germany, a citizen of Germany, hereby declare:

1.   That I am an entomologist having studied at the University of Bonn, Germany;

2.   That I received the degree of doctor rer. nat. at the University of Bonn, Germany in the year 1982;

3.   That I specialized in the field of entomology and phytopathology;

4.   That I entered the employ of Bayer Aktiengesellschaft, Leverkusen, Germany, in 1982, where I have been employed in the department for the biological development of chemical compounds for plant diseases at Monheim, Gemany, that after the spin-off from Bayer CropScience AG I am now employee of this company in the department of Global Biology Fungicides;

5.   That the following experiments with the following results have been carried out under my supervision and direction.

COMPARATIVE TEST 1

Venturia test (apples) / protective

Solvent:	24.5	parts by weight of acetone
	24.5	parts by weight of dimethylacetamide
Emulsifier:	1	part by weight of alkylaryl polyglycol ether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amounts of solvent and emulsifier, and the concentrate is diluted with water to the desired concentration.

To test for protective activity, young plants are sprayed with the preparation of active compound at the stated rate of application. After the spray coating has dried on, the plants are inoculated with an aqueous conidia suspension of the causal agent of apple scab **(Venturia inaequalis)** and then remain for 1 day in an incubation cabinet at approximately 20°C and a relative atmospheric humidity of 100 %.

The plants are then placed in a greenhouse at approximately 21°C and a relative atmospheric humidity of approximately 90 %.

The test is evaluated 10 days after the inoculation. 0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no disease is observed.

The good fungicidal activity of the active compound combinations according to the invention is evident from the example below. While the individual active compounds exhibit weaknesses with regard to the fungicidal activity, the combinations have an activity which exceeds a simple addition of activities.

A synergistic effect of fungicides is always present when the fungicidal activity of the active compound combinations exceeds the total of the activities of the active compounds when applied individually.

The expected activity for a given combination of two active compounds can be calculated as follows (cf. Colby, S.R., "Calculating Synergistic and Antagonistic Responses of Herbicide Combinations", Weeds 15, pages 20-22, 1967):

If

X   is the efficacy, when applying the active compound A at a rate of application of active compound of $\underline{m}$ g/ha,

Y   is the efficacy, when applying the active compound B at a rate of application of active compound of $\underline{n}$ g/ha,

E   is the expected efficacy, when applying the active compounds A and B at rates of application of active compound of $\underline{m}$ and $\underline{n}$ g/ha,
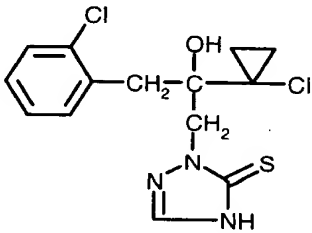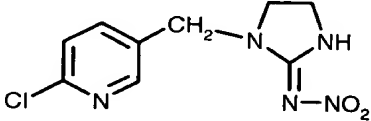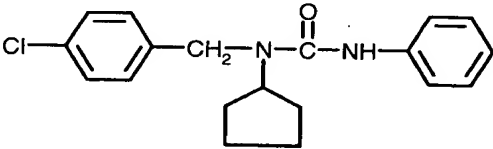
then
$$E = X + Y - \frac{X \times Y}{100}.$$

The degree of efficacy, expressed in % is denoted. 0 % means an efficacy which corresponds to that of the control while an efficacy of 100 % means that no disease is observed.

If the actual fungicidal activity exceeds the calculated value, then the activity of the combination is super-additive, i.e. a synergistic effect exists. In this case, the efficacy which was actually observed must be greater than the value for the expected efficacy (E) calculated from the abovementioned formula.

The invention is illustrated by the following example.

Results:

Venturia test (apples) / protective

Active compound Known:	Application rate of active compound in ppm	Efficacy in %
Prothioconazole (Formula I)	10	47
Imidacloprid (Formula XXII)	10	0
Pencycuron (Formula XXIII)	10	3

Inventive Compound Combinations:

	Ratio of the mixture	Application rate of active compound in ppm	Actual efficacy	Expected value, calculated using Colby's formula
Prothioconazole (Formula I) + Imidacloprid (Formula XXII)	1:1	10 + 10	88	47
Prothioconazole (Formula I) + Pencycruon (Formula XXIII)	1:1	10 + 10	85	49

The undersigned declarant declares further that all statements made herein of her own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed at Monheim, Germany,

September 28, 2006
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Date

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Dr. Ulrike Wachendorff-Neumann